

TRAFFIC IMPACT STUDY

For

Mixed-Use Building

Property Located at:

Block 90 – Lots 16-23
How Lane (CR 680) & Livingston Avenue (Route 26)
Township of North Brunswick, Middlesex County, NJ

Prepared by:



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January 22, 2020

2694-99-001TE

INTRODUCTION

It is proposed to construct a mixed-use building on a parcel of land currently developed with several single family homes, located along the southbound side of Livingston Avenue (Route 26) between How Lane (CR 680) and Fleetwood Avenue in the Township of North Brunswick, Middlesex County, New Jersey, see Figure 1 in Appendix A. The site is designated as Block 90 – Lots 16-23 on the Township of North Brunswick Tax Maps. The existing use consists of several single family homes. It is proposed to raze the entire site and construct a mixed-use building consisting of 13,129 SF of ground floor retail and 36 residential apartment units on the first, second, and third floors (The Project). The site is located within the GO – General Office zone. Access to the site is currently provided via multiple driveways along Livingston Avenue, How Lane, and Fleetwood Avenue. It is proposed to close and consolidate all of the existing driveways and construct one right turn in/right turn out driveway along Livingston Avenue, one right turn in only driveway along How Lane, and one full movement driveway along Fleetwood Avenue. It should also be noted that as part of The Project it is proposed to widen the eastbound approach of Fleetwood Avenue from one shared left turn/right turn lane to one dedicated left turn lane and one dedicated right turn lane at its intersection with Livingston Avenue.

Dynamic Traffic LLC has been retained to prepare this study to assess the traffic impact associated with the construction of The Project on the adjacent roadway network. This study documents the methodology, analyses, findings and conclusions of our study and includes:

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, traffic control, and location and geometry of existing driveways and intersections.
- Existing traffic data was collected via manual turning movement (MTM) counts during the weekday AM and weekday PM peak periods at the intersections of:
 - Livingston Avenue and How Lane
 - Livingston Avenue and Fleetwood Avenue
- Projections of traffic to be generated by the proposed development were prepared utilizing trip generation data as published by the Institute of Transportation Engineers. Site traffic was then assigned to the adjacent street system based upon the anticipated directional distribution.
- Capacity analyses were conducted for the Existing, No Build, and Build conditions for the study intersections.
- The proposed points of ingress and egress were inspected for adequacy of geometric design, spacing and/or alignment to streets and driveways on the opposite side of the street, relationship to other driveways adjacent to the development, and conformance with accepted design standards.
- The site plan as designed was reviewed for sufficiency in accommodating large wheel base vehicles such as delivery trucks, refuse trucks, and emergency vehicles.
- The parking layout and supply was assessed based on accepted design standards and demand experienced at similar developments.

EXISTING CONDITIONS

A review of the existing roadway conditions near the proposed site was conducted to provide the basis for assessing the traffic impact of the development. This included field investigations of the surrounding roadways and intersections, collection of traffic volume data, and extensive analyses.

Existing Roadway Conditions

The following are descriptions of the roadways in the study area:

Livingston Avenue (Route 26) is an Urban Minor Arterial roadway under the New Jersey Department of Transportation (NJDOT) jurisdiction with a general north/south orientation. In the vicinity of the site the posted speed limit is 35 MPH and the roadway provides one travel lane in each direction. On-street parking is prohibited along both sides of the roadway. Curb is provided along both sides of the roadway, while sidewalk is provided along the northbound side of the roadway. Livingston Avenue provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Livingston Avenue in the vicinity of The Project are primarily residential and commercial.

How Lane (CR 680) is an Urban Minor Arterial Roadway under Middlesex County jurisdiction with a general east/west orientation. In the vicinity of the site the posted speed limit is 35 MPH and the roadway provides one travel lane in each direction. On-street parking is prohibited along both sides of the roadway. Curb is provided along both sides of the roadway while sidewalk is provided along the westbound side of the roadway. How Lane provides a straight horizontal alignment and a slightly downward sloping vertical alignment from west to east. The land uses along How Lane in the vicinity of The Project are primarily residential and commercial.

Fleetwood Avenue is an Urban Local Roadway under North Brunswick jurisdiction with a general east/west orientation. In the vicinity of the site the speed limit is not posted and the roadway provides one travel lane in each direction. On-street parking is permitted along both sides of the roadway. Curb is provided along both sides of the roadway while sidewalk is provided along a portion of the eastbound side of the roadway.

Existing Traffic Volumes

Manual turning movement (MTM) counts were conducted on Wednesday, June 20, 2018 from 7:00 to 9:00 AM and 4:30 to 6:30 PM at the following intersections:

- Livingston Avenue and How Lane
- Livingston Avenue and Fleetwood Avenue

Review of the collected traffic data reveals that the weekday morning network peak street hour (PSH) occurs between 7:30 - 8:30 AM and the weekday evening network PSH occurs between 4:45 – 5:45 PM. All traffic counts are contained in Appendix B.

Note that the 2018 counts were increased to better represent existing 2020 traffic volumes by applying a growth rate of 1.0% per year obtained from the NJDOT Annual Background Growth Rate Table for a period of two years. Figure 2, located in Appendix A, shows the existing peak hour traffic volumes at the study intersections.

It should be noted that the Livingston Park Elementary School is located just north of The Project. The operation of the roadway network during school dismissal was considered, however, based on Automatic Traffic Recorder (ATR) data conducted by this firm, the volumes along Livingston Avenue are 10%-15% lower during the school peak hour than they are during the evening peak street hour. Copies of the ATR data is contained in Appendix B.

Existing Capacity Analysis

The methodology utilized in the capacity analyses is described in the *Highway Capacity Manual*, published by the Transportation Research Board. In general, the term Level of Service (LOS) is used to provide a “qualitative” evaluation of capacity based upon certain “quantitative” calculations related to empirical values, such as traffic volume and intersection control.

At the signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal “green time”, turning percentages, truck volumes, etc. However, delays cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the Level of Service “F” range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist: long signal cycle lengths; a particular traffic movement experiences a long red time; or progressive movement for a particular lane group is poor. Table I describes the level of service ranges for signalized intersections.

An unsignalized (STOP sign controlled) driveway or side street along a through route is seldom critical from an overall capacity standpoint, however, it may be of great significance to the capacity of the minor cross-route, and it may influence the quality of traffic flow on both. When analyzing an unsignalized intersection, it is assumed that both the major street through and right turn movements are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements. Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. Table II describes the level of service ranges for unsignalized (stop controlled) intersections.

**Table I
Level of Service Criteria
for Signalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
A	0.0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	greater than 80.0

**Table II
Level of Service Criteria
for Unsignalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
a	0.0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	greater than 50.0

It should be noted that the analyses within the *Highway Capacity Manual* assume a random arrival for all the movements, which may not be the case if an adjacent traffic signal is present that platoons vehicles, such as the intersection of Livingston Avenue and How Lane.

All capacity analyses were performed utilizing Synchro 11. Table III summarizes the existing levels of service (LOS) and delays. All capacity analysis calculation worksheets are contained in Appendix C.

**Table III
Existing Levels of Service**

Intersection	Direction/ Movement		AM PSH	PM PSH
Livingston Avenue and How Lane	EB	L	D (48)	D (48)
		R	A (5)	A (3)
	NB	L	B (20)	C (34)
		T	B (12)	B (19)
	SB	T	C (29)	D (37)
		R	A (8)	A (7)
	Overall		C (20)	C (27)
Livingston Avenue and Fleetwood Avenue	EB	LR	b (14)	c (16)
	NB	L	a (8)	a (9)

a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)

The following are discussions pertaining to each of the existing intersections analyzed. It should be noted that the existing percentage of trucks and peak hour factors were used in the existing analysis.

Livingston Avenue and How Lane

How Lane intersects Livingston Avenue to form a T-intersection controlled by a traffic signal. The signal timing directive was obtained from the New Jersey Department of Transportation which indicates that a three-phase 90-second background cycle is utilized (the traffic signal timing directive is included in Appendix B). The northbound approach of Livingston Avenue provides one dedicated left turn lane and one dedicated through lane, while the southbound approach provides one dedicated through lane and one dedicated right turn lane. The eastbound approach of How Lane provides one dedicated left turn and one dedicated right turn lane.

A review of the existing analysis reveals that all movements operate at levels of service “D” or better during the analyzed peak periods. See Table III for the individual movement levels of service and delays.

Livingston Avenue and Fleetwood Avenue

Fleetwood Avenue intersects Livingston Avenue to form a T-intersection with the eastbound approach of Fleetwood Avenue operating under stop control. The northbound approach of Livingston Avenue provides a Two-Way-Left-Turn-Lane for left turn movements and one dedicated through lane, while the southbound approach provides a shared through/right turn lane. The eastbound approach of Fleetwood Avenue provides a shared left turn/right turn lane.

A review of the existing analysis reveals that all movements operate at levels of service “C” or better during the analyzed peak periods. See Table III for the individual movement levels of service and delays.

FUTURE CONDITIONS

Traffic volumes and operational analyses were developed for both the 2022 No Build and Build conditions. The No Build conditions provide a baseline for assessing the impact of the site development traffic on the roadway system. The process of developing the No Build and Build traffic volumes and the subsequent analyses is outlined below.

Regardless of whether the subject site is developed or not, traffic volumes on the surrounding roadways are expected to increase as a result of developments throughout the region. A growth rate for roadways within the study area was obtained from the NJDOT Annual Background Growth Rate Table, which indicates a growth rate of 2.0% per year.

Through consultation with the Township of North Brunswick Planning Board staff, there is one development in the vicinity of the site that has been approved but not yet constructed that is identified as a potential significant traffic generator, shown below. The Adjacent Development Traffic Volumes passing the site are shown on Figure 3. It was assumed that the background growth rate was adequate to account for the traffic associated with all developments not listed hereafter.

- A development consisting of a 5,585 SF Wawa Food Market and Fueling Station, located at 933 Livingston Avenue, has been approved. Projections of the associated traffic volumes were developed using Institute of Transportation (ITE) publication *Trip Generation, 9th Edition* for Land Use Code (LUC) 960 – Super Convenience Market/Gasoline.

Future 2022 No Build traffic volumes were developed by applying the background growth rate of 1.0% for two (2) years to the study area roadways existing traffic volumes and adding the adjacent development traffic volumes. Figure 4, in Appendix A, shows the 2022 No Build traffic volumes.

Traffic Generation

Trip generation projections for The Project were prepared utilizing trip generation research data as published under Land Use Code (LUC) 221– Multi-family Housing (Mid-Rise) and LUC 820 – Shopping Center in the Institute of Transportation Engineers' (ITE) publication, *Trip Generation, 10th Edition*. This publication sets forth trip generation rates based on traffic counts conducted at research sites throughout the country.

According to studies conducted by ITE, traffic associated with LUC 820 is not 100% newly generated. Rather, a portion of the traffic is diverted from the existing traffic stream on the adjacent roadway network. This is because the shopping center is not exclusively a destination land use, instead patrons stop on their way to/from other locations such as home or work. ITE identifies a 34% passby traffic percentage during the evening peak, which is also accepted by NJDOT, and was used during the evening peak hour. Table IV below details the traffic volumes associated with the subject project taking into account the passby credits.

**Table IV
Trip Generation Considering Passby Traffic**

Trip Type		AM PSH			PM PSH		
		In	Out	Total	In	Out	Total
13,129 SF Shopping Center	Total	7	5	12	58	63	121
	Passby	-	-	-	20	21	41
	New (Primary)	7	5	12	38	42	80
36 Mid-Rise Apartments	Total	3	10	13	10	7	17
	Passby	-	-	-	-	-	-
	New (Primary)	3	10	13	10	7	17
Total	Total	10	15	25	68	70	138
	Passby	-	-	-	20	21	41
	New (Primary)	10	15	25	48	49	97

Once the magnitude of traffic to be generated by the site is known, it is necessary to assign that traffic to the adjacent street system. The distribution of new traffic to the surrounding roadways is based on the location of primary arterial roadways, major signalized intersections and existing traffic patterns. Table V below summarizes the anticipated trip distribution for The Project.

**Table V
Trip Distribution**

To/From	Percentage
How Lane – West	20%
Fleetwood Avenue – West	5%
Livingston Avenue – North	25%
Livingston Avenue – South	25%
Total	100%

Located in Appendix A, Figure 5 illustrates the primary site generated volumes, Figure 6 illustrates the passby site generated volumes, and Figure 7 illustrates the total site generated volumes assigned to the study area network. The site generated volumes were added to the No Build traffic volumes to generate the Build traffic volumes, which are shown in Figure 8.

Future Capacity Analysis

Operational conditions at the study intersections were analyzed under the No Build and Build conditions and are summarized in Table VI below.

**Table VI
Future Levels of Service**

Intersection	Direction/ Movement		AM PSH		PM PSH	
			No Build	Build	No Build	Build
Livingston Avenue and How Lane	EB	L	D (49)	D (49)	D (50)	D (50)
		R	A (5)	A (5)	A (3)	A (3)
	NB	L	C (21)	C (22)	D (39)	D (45)
		T	B (13)	B (13)	B (19)	B (19)
	SB	T	C (31)	C (31)	D (40)	D (42)
		R	A (9)	A (9)	A (7)	A (7)
	Overall		C (21)	C (21)	C (29)	C (30)
Livingston Avenue and Fleetwood Avenue	EB	L	b (14)	c (19)	c (17)	c (22)
		R		b (11)		b (14)
	NB	L	a (8)	a (8)	a (9)	a (9)
Livingston Avenue and Site Driveway	EB	R	-	b (11)	-	b (14)
Fleetwood Avenue and Site Driveway	EB	L	-	a (7)	-	a (7)
	SB	LR	-	a (9)	-	a (9)

a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)

Livingston Avenue and How Lane

With the addition of site generated traffic, the intersection will continue to operate with No Build levels of service “D” or better during the studied peak hours. See Table VI for the individual movement levels of service and delays.

Livingston Avenue and Fleetwood Avenue

As previously mentioned, the eastbound approach of Fleetwood Avenue is proposed to be widened from one shared left turn/right turn lane to one designated left turn lane and one designated right turn lane.

With the addition of site generated traffic, the intersection is anticipated to operate at levels of service “C” or better during the studied peak hours. See Table VI for the individual movement levels of service and delays.

Livingston Avenue and Site Driveway

The site driveway is proposed to intersect Livingston Avenue to form an unsignalized T-intersection with the eastbound approach of the site driveway operating under stop control. The northbound approach of Livingston Avenue is proposed to provide an exclusive through lane, while the southbound approach is proposed to provide a shared through/right turn lane. The eastbound approach of the site driveway is proposed to provide a right turn lane.

As designed, the driveway is anticipated to operate at levels of service “B” during the studied peak hours. See Table VI for the individual movement levels of service and delays.

Fleetwood Avenue and Site Driveway

The site driveway is proposed to intersect Fleetwood Avenue to form a T-intersection with the southbound approach of the site driveway operating under stop control. The eastbound approach of Fleetwood Avenue is proposed to provide a shared left turn/through lane, while the westbound approach of Fleetwood Avenue is proposed to provide a shared through/right turn lane. The southbound approach of the site driveway is proposed to provide a shared left/right turn lane.

As designed, the driveway is anticipated to operate at levels of service “A” during the studied peak hours. See Table VI for the individual movement levels of service and delays.

How Lane and Site Driveway

The site driveway is proposed to intersect How Lane to form a T-intersection and is proposed to provide for right turn ingress only. The westbound approach of How Lane is proposed to provide one shared through/right turn lane, while the westbound approach is proposed to provide one dedicated through lane. Note that because only major street through and right turn movements will exist at the intersection, there will be no impeded movements. Therefore, the intersection will experience no delay.

SITE PLAN

Site Access and Circulation

The site plan was reviewed with respect to the site access and on-site circulation design. As noted previously, access to The Project will be provided via a right turn in/right turn out only driveway along Livingston Avenue, a right turn in only driveway along How Lane and a full movement driveway along Fleetwood Avenue.

The parking lot will be serviced by parking aisles with widths of 25', which meet the Ordinance's minimum requirement of 24'. These aisles will allow for two-way circulation and 90 degree parking. Review of the site plan design indicates that the site can sufficiently accommodate, within paved areas, a large wheel base vehicle, such as a single unit truck (SU), along with the automobile traffic anticipated.

Parking

The Residential Site Improvement Standards (RSIS) sets forth a parking requirement of 1.8 parking spaces per one-bedroom apartment and 2 spaces per two-bedroom apartment, and the Township of North Brunswick Ordinance sets forth a parking requirement of 1 parking space per 200 SF of retail space. This equates to a parking requirement of 69 spaces for the proposed 36 residential apartments and 66 spaces for the proposed 13,129 SF retail space, or a total of 135 parking spaces. The site as proposed provides 138 parking spaces and the RSIS and Ordinance requirements are met.

It is proposed to provide parking stalls with dimensions of 9'x18', which satisfy the Ordinance minimum requirement of 9'x18'.

FINDINGS & CONCLUSIONS

Findings

Based upon the detailed analyses as documented herein, the following findings are noted:

- The proposed mixed-use building consisting of 13,129 SF of ground level retail space and 36 residential apartment units on the first, second, and third floors, will generate 10 entering trips and 15 exiting trips during the weekday morning peak hour, and 48 entering trips and 49 exiting trips during the weekday evening peak hour that are “new” to the adjacent roadway network.
- Access to the site is proposed to be provided via a right turn in/right turn out only driveway along Livingston Avenue, one right turn in only driveway along How Lane, and one full movement driveway along Fleetwood Avenue.
- It is proposed to widen the eastbound approach of Fleetwood Avenue at its intersection with Livingston Avenue from one shared left/right turn lane to one dedicated left turn lane and one dedicated right turn lane.
- With the addition of site generated traffic, the intersection of Livingston Avenue and How Lane will continue to operate at No Build levels of service “D” or better during the peak hours studied.
- With the addition of site generated traffic, the intersection of Livingston Avenue and Fleetwood Avenue is anticipated to operate at acceptable levels of service “C” or better during the peak hours studied.
- As designed, the intersection of Livingston Avenue and the site driveway is anticipated to operate at acceptable levels of service “B” during the peak hours studied.
- As designed, the intersection of Fleetwood Avenue and the site driveway is anticipated to operate at acceptable levels of service “A” during the peak hours studied.
- As designed, the intersection of How Lane and the right turn in only driveway will experience no delay.
- As proposed, The Project’s site driveways and internal circulation have been designed to provide for safe and efficient movement of automobiles and large wheel base vehicles.
- The proposed parking supply and design is sufficient to support the projected demand and exceeds RSIS and Ordinance requirements.

Conclusions

Based upon our Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Dynamic Traffic LLC that the adjacent street system of the Township of North Brunswick, Middlesex County, and the New Jersey Department of Transportation will not experience any significant degradation in operating conditions with the construction of The Project. The site driveways are located to provide safe and efficient access to the adjacent roadway system. The site plan as proposed provides for good circulation throughout the site and provides adequate parking to accommodate The Project’s needs.

Appendix A

Traffic Volume Figures



Proposed Mixed Use Development
Traffic Impact Study
2694-99-001TE
1/22/2020

Figure 1

Site Location Map

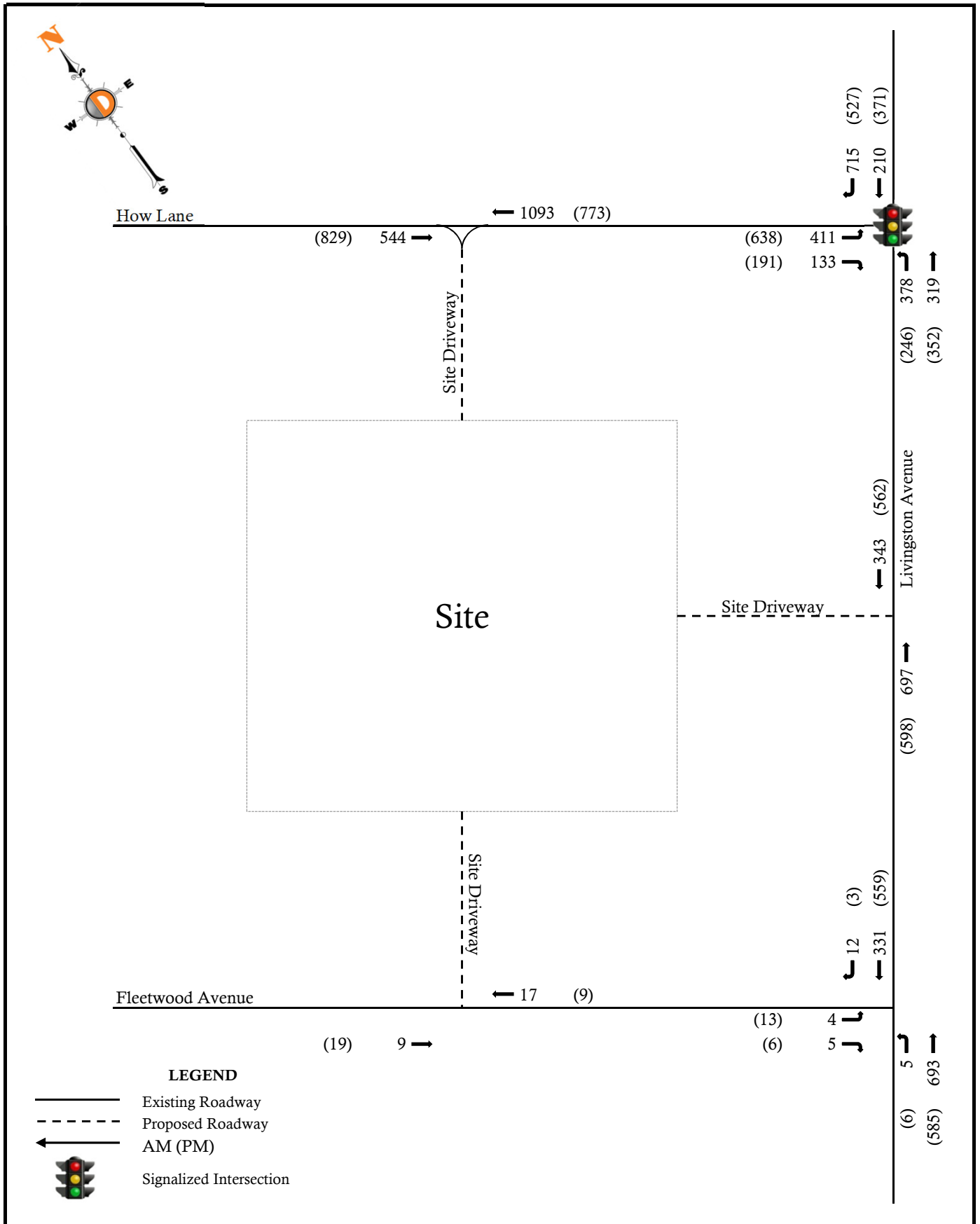
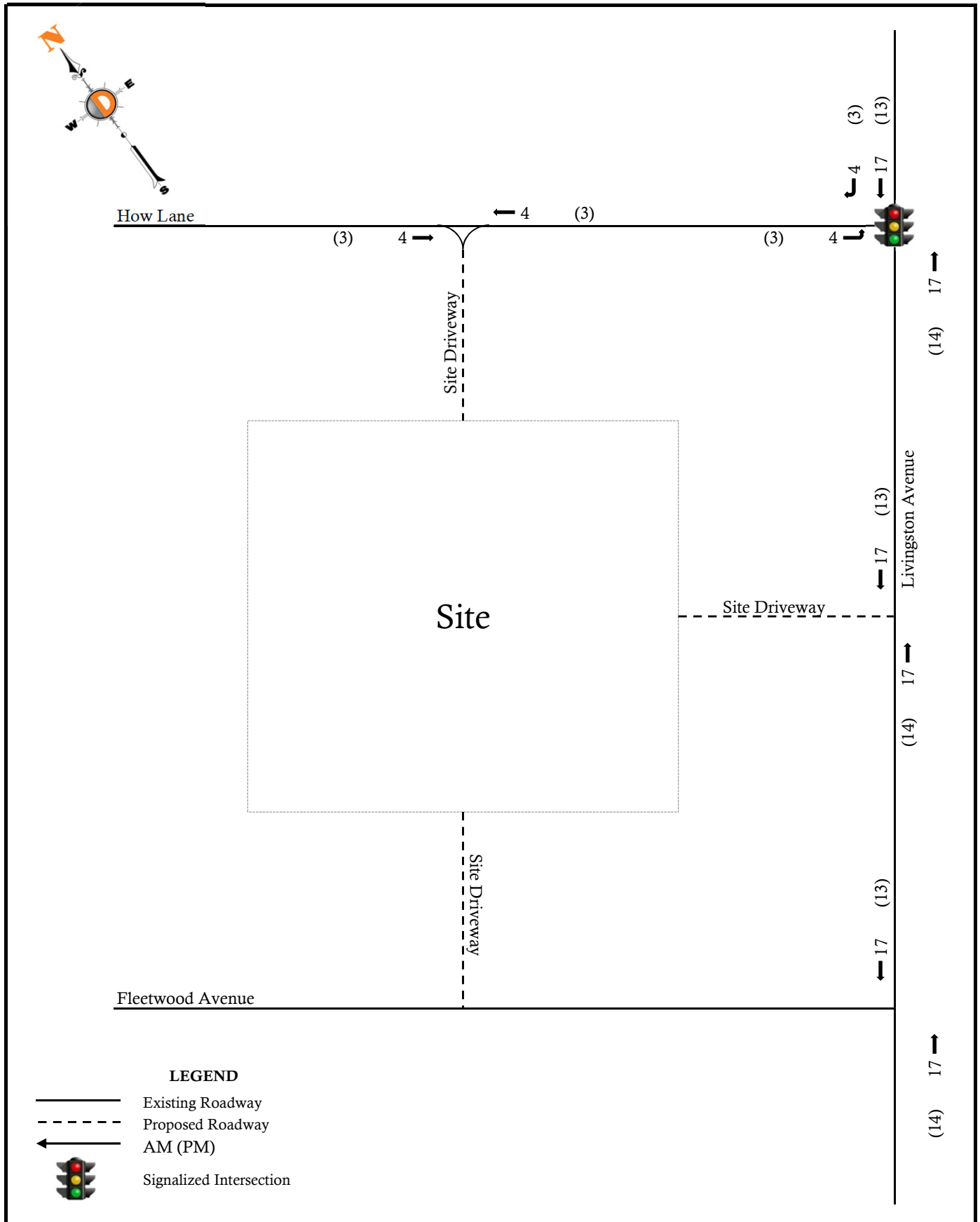


Figure 2

Existing Traffic Volumes



Proposed Mixed Use Development
 Traffic Impact Study
 2694-99-001TE
 1/22/2020



Proposed Mixed Use Development
 Traffic Impact Study
 2694-99-001TE
 1/22/2020

Figure 3
Adjacent Development Traffic Volumes
[Wawa]

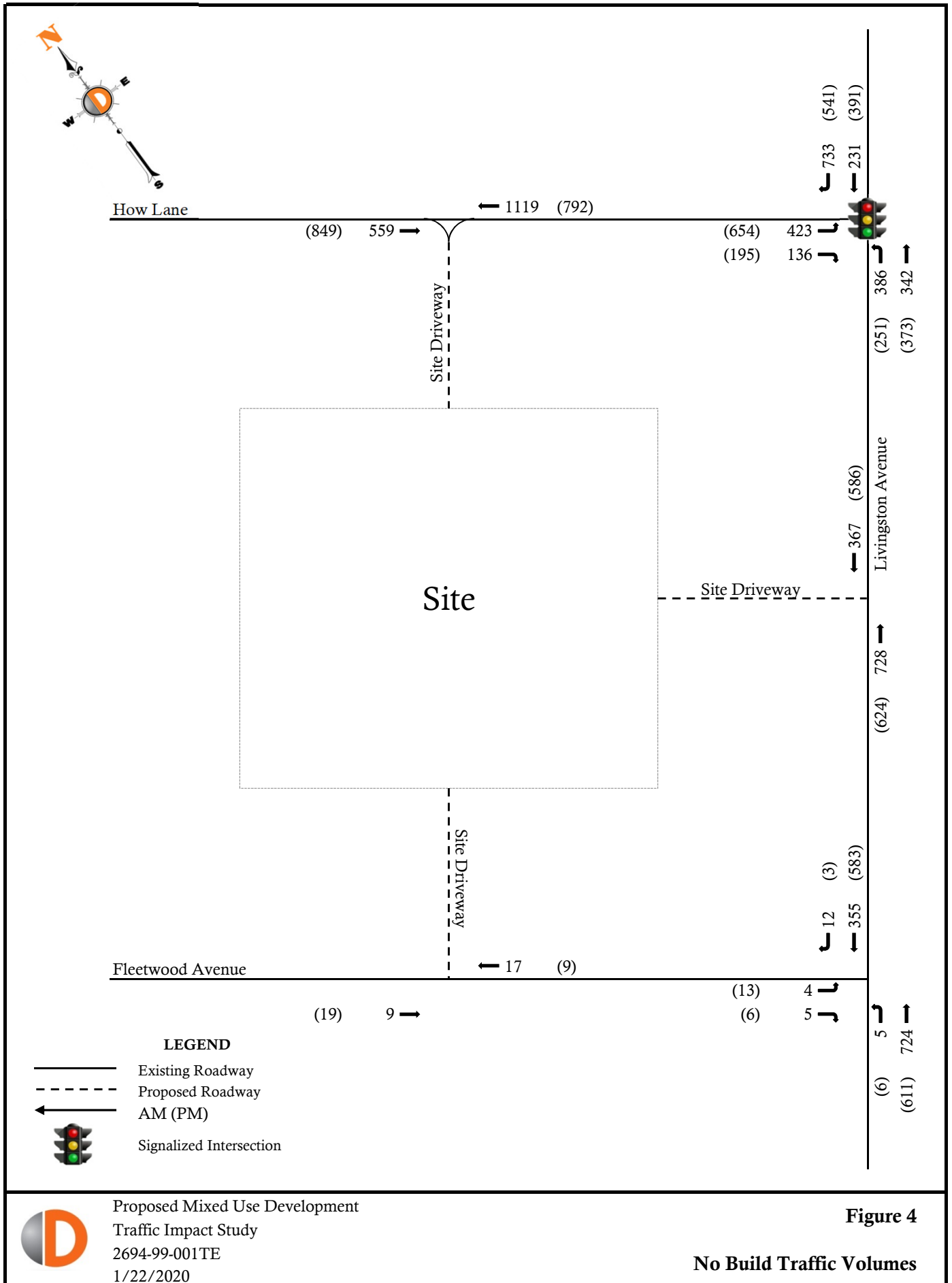
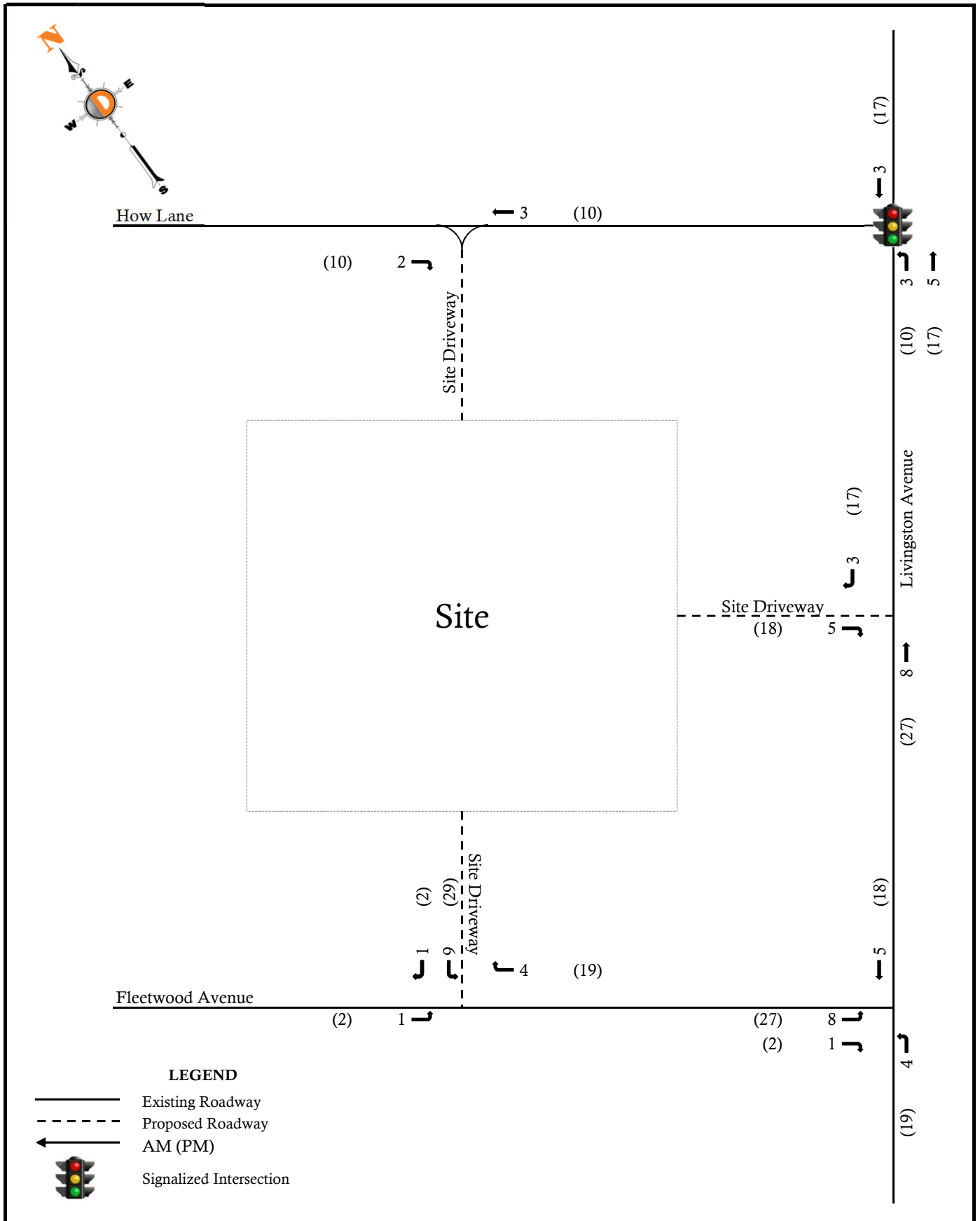


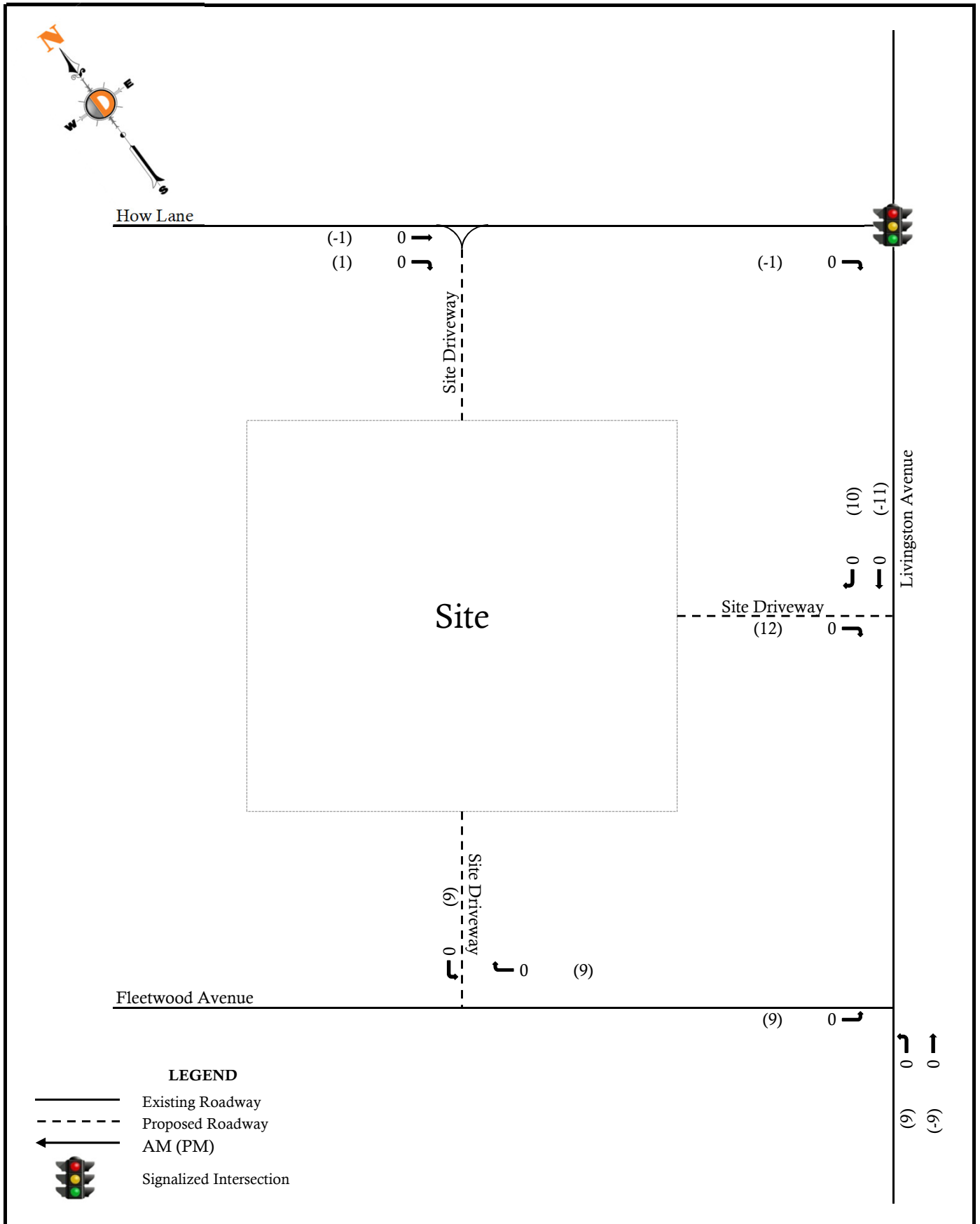
Figure 4

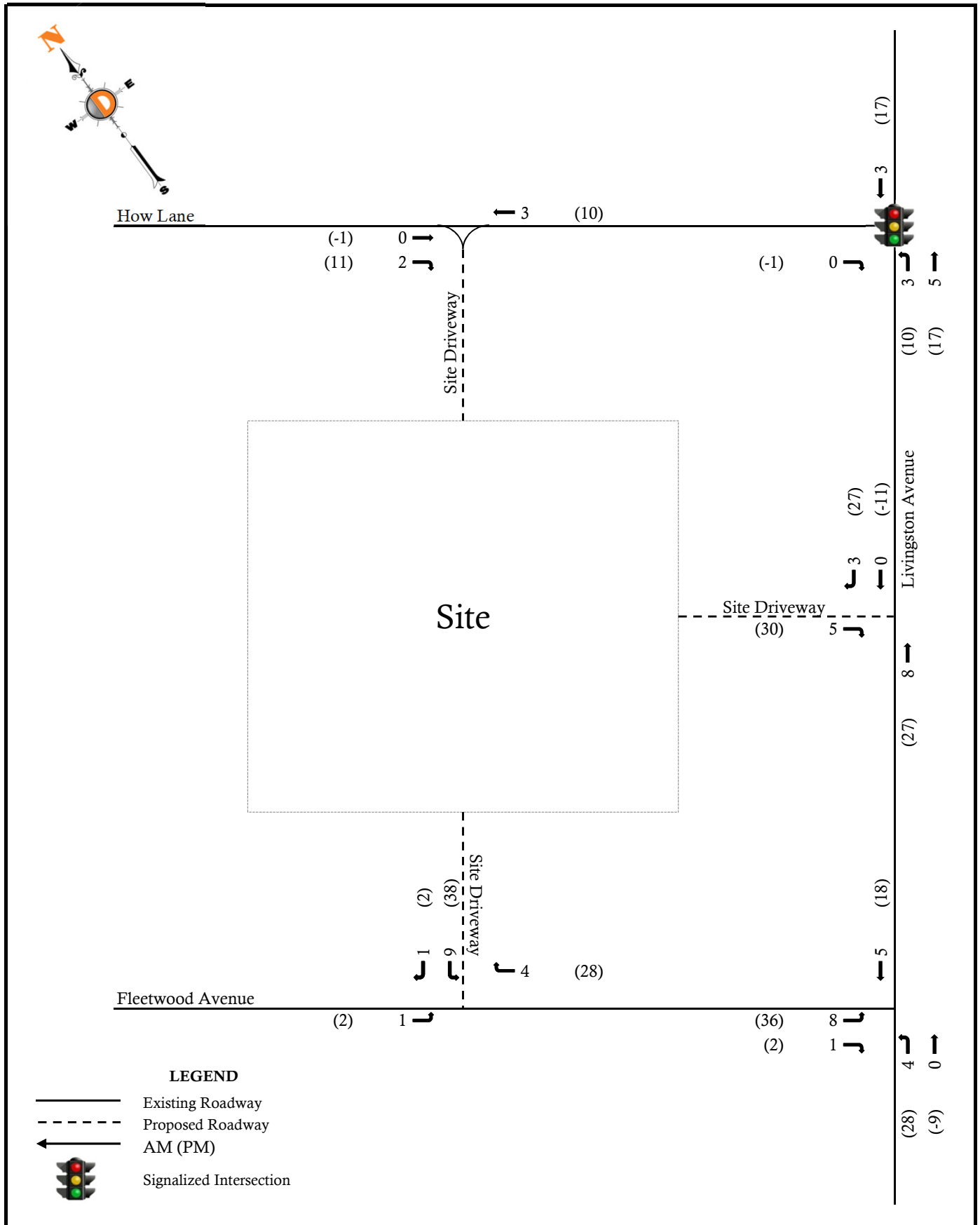
No Build Traffic Volumes



Proposed Mixed Use Development
 Traffic Impact Study
 2694-99-001TE
 1/22/2020







Proposed Mixed Use Development
 Traffic Impact Study
 2694-99-001TE
 1/22/2020

Figure 7

Total Site Generated Trips

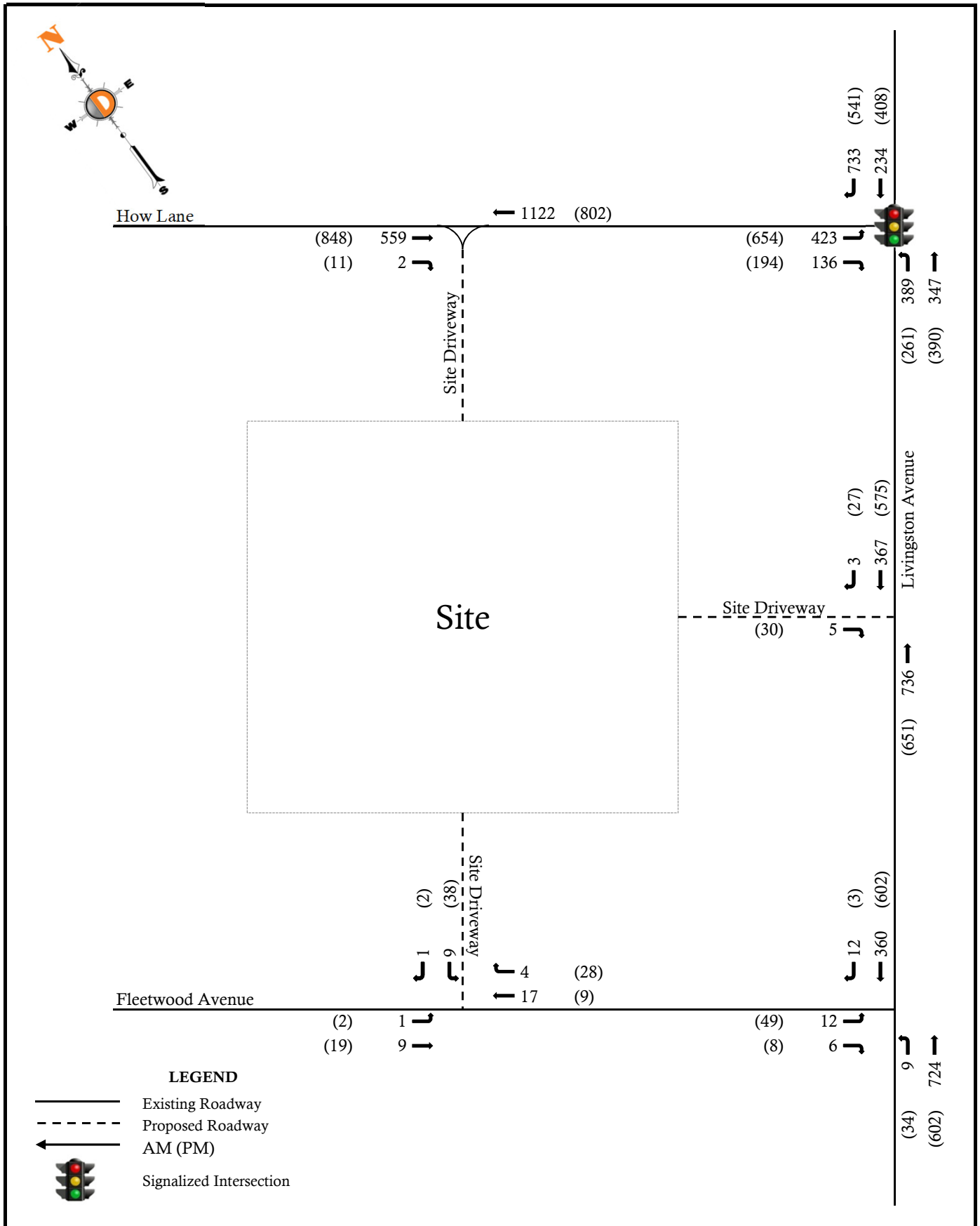


Figure 8

Build Traffic Volumes



Proposed Mixed Use Development
 Traffic Impact Study
 2694-99-001TE
 1/22/2020

Appendix B

Project Information

Dynamic Traffic, LLC

1904 Main Street, Lake Como, NJ 07719
245 Main Street - Suite #110, Chester, NJ 07930
732-681-0760

E/W: Fleetwood Ave
N/S: Livingston Ave
Town/County: North Brunswick/Middlesex
Job #: 2694-99-001TE

File Name : Livingston Ave & Fleetwood Ave AM & PM
Site Code : 00000000
Start Date : 6/20/2018
Page No : 1

Groups Printed- Cars - Single Unit Trucks - Tractor Trailers

Start Time	Fleetwood Avenue Eastbound					Livingston Avenue (Rt 26) Northbound					Livingston Avenue (Rt 26) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	2	0	1	0	3	1	140	0	0	141	0	60	5	0	65	209
07:15 AM	2	0	1	0	3	0	142	0	0	142	0	85	2	0	87	232
07:30 AM	3	0	0	0	3	0	197	0	0	197	0	85	1	1	87	287
07:45 AM	0	0	2	0	2	2	157	0	1	160	0	71	3	0	74	236
Total	7	0	4	0	11	3	636	0	1	640	0	301	11	1	313	964
08:00 AM	0	0	1	0	1	1	163	0	0	164	0	85	3	0	88	253
08:15 AM	1	0	2	0	3	2	162	0	0	164	0	83	5	0	88	255
08:30 AM	3	0	1	0	4	4	193	0	0	197	0	76	3	0	79	280
08:45 AM	0	0	1	0	1	3	168	0	0	171	0	82	3	0	85	257
Total	4	0	5	0	9	10	686	0	0	696	0	326	14	0	340	1045

*** BREAK ***

01:00 PM	1	0	2	0	3	1	112	0	0	113	0	107	0	0	107	223
01:15 PM	4	0	2	0	6	2	127	0	0	129	0	104	3	0	107	242
01:30 PM	1	0	1	0	2	0	150	0	0	150	0	88	1	0	89	241
01:45 PM	1	0	2	1	4	1	118	0	0	119	0	123	2	1	126	249
Total	7	0	7	1	15	4	507	0	0	511	0	422	6	1	429	955

*** BREAK ***

04:30 PM	3	0	3	0	6	0	134	0	0	134	0	117	0	0	117	257
04:45 PM	1	0	1	0	2	1	113	0	0	114	0	142	1	0	143	259
Total	4	0	4	0	8	1	247	0	0	248	0	259	1	0	260	516
05:00 PM	6	0	2	0	8	2	143	0	0	145	0	144	2	0	146	299
05:15 PM	2	0	2	0	4	2	173	0	0	175	0	126	0	0	126	305
05:30 PM	4	0	1	0	5	1	142	0	0	143	0	113	0	0	113	261
05:45 PM	3	0	2	0	5	2	117	0	0	119	1	126	3	0	130	254
Total	15	0	7	0	22	7	575	0	0	582	1	509	5	0	515	1119
06:00 PM	1	0	1	0	2	0	91	0	0	91	0	104	0	0	104	197
06:15 PM	1	0	0	0	1	0	87	0	0	87	0	75	0	0	75	163
Grand Total	39	0	28	1	68	25	2829	0	1	2855	1	1996	37	2	2036	4959
Apprch %	57.4	0	41.2	1.5		0.9	99.1	0	0		0	98	1.8	0.1		
Total %	0.8	0	0.6	0	1.4	0.5	57	0	0	57.6	0	40.3	0.7	0	41.1	
Cars	36	0	24	1	61	25	2725	0	1	2751	1	1922	33	2	1958	4770
% Cars	92.3	0	85.7	100	89.7	100	96.3	0	100	96.4	100	96.3	89.2	100	96.2	96.2
Single Unit Trucks	3	0	4	0	7	0	61	0	0	61	0	51	4	0	55	123
% Single Unit Trucks	7.7	0	14.3	0	10.3	0	2.2	0	0	2.1	0	2.6	10.8	0	2.7	2.5
Tractor Trailers	0	0	0	0	0	0	43	0	0	43	0	23	0	0	23	66
% Tractor Trailers	0	0	0	0	0	0	1.5	0	0	1.5	0	1.2	0	0	1.1	1.3

Dynamic Traffic, LLC

1904 Main Street, Lake Como, NJ 07719
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732-681-0760

E/W: How Lane (CR 680)
N/S: Livingston Avenue (Rt 26)
Town/County: North Brunswick/Middlesex
Job #: 2694-99-001TE

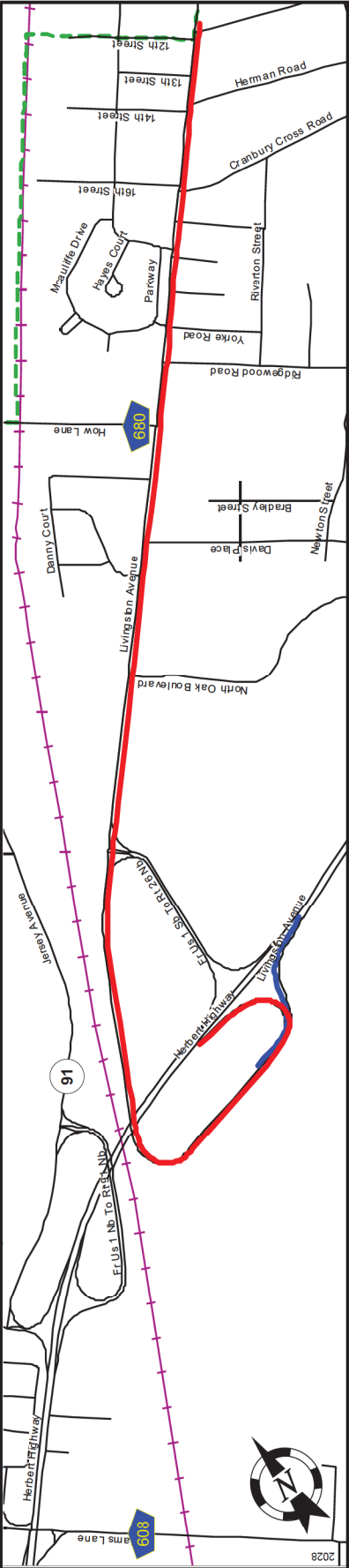
File Name : Livingston Ave & How Ln AM & PM
Site Code : 00000000
Start Date : 6/20/2018
Page No : 1

Groups Printed- Cars - Single Unit Trucks - Tractor Trailers

	How Lane (CR 680) Eastbound					Livingston Avenue (Rt 26) Northbound					Livingston Avenue (Rt 26) Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	73	0	31	0	104	82	54	0	0	136	0	36	147	0	183	423
07:15 AM	94	0	31	0	125	84	52	0	0	136	0	45	172	0	217	478
07:30 AM	103	0	22	0	125	99	72	0	0	171	0	54	169	0	223	519
07:45 AM	95	0	21	0	116	59	76	0	0	135	0	42	181	0	223	474
Total	365	0	105	0	470	324	254	0	0	578	0	177	669	0	846	1894
08:00 AM	108	0	27	0	135	79	70	0	0	149	0	55	179	1	235	519
08:15 AM	97	0	18	0	115	83	52	0	0	135	0	34	171	0	205	455
08:30 AM	97	0	17	0	114	93	64	0	0	157	0	32	167	0	199	470
08:45 AM	96	0	23	0	119	76	58	0	0	134	0	31	189	0	220	473
Total	398	0	85	0	483	331	244	0	0	575	0	152	706	1	859	1917
*** BREAK ***																
01:00 PM	125	0	35	0	160	56	27	0	0	83	0	42	149	0	191	434
01:15 PM	107	0	26	0	133	66	39	0	0	105	0	55	153	0	208	446
01:30 PM	122	0	30	0	152	79	71	0	0	150	0	56	153	1	210	512
01:45 PM	99	0	23	0	122	75	36	0	0	111	0	77	187	0	264	497
Total	453	0	114	0	567	276	173	0	0	449	0	230	642	1	873	1889
*** BREAK ***																
04:30 PM	125	0	25	0	150	67	38	0	0	105	0	58	105	2	165	420
04:45 PM	144	0	44	0	188	52	86	0	0	138	0	96	136	0	232	558
Total	269	0	69	0	338	119	124	0	0	243	0	154	241	2	397	978
05:00 PM	165	0	51	0	216	59	70	0	0	129	0	88	108	0	196	541
05:15 PM	162	0	45	0	207	62	85	0	0	147	0	90	141	0	231	585
05:30 PM	154	0	47	0	201	68	104	0	0	172	0	90	132	1	223	596
05:45 PM	169	0	29	0	198	49	46	0	0	95	0	73	90	1	164	457
Total	650	0	172	0	822	238	305	0	0	543	0	341	471	2	814	2179
06:00 PM	150	0	44	0	194	51	65	0	0	116	0	72	114	0	186	496
06:15 PM	162	0	55	0	217	65	62	0	0	127	0	67	130	1	198	542
Grand Total	2447	0	644	0	3091	1404	1227	0	0	2631	0	1193	2973	7	4173	9895
Apprch %	79.2	0	20.8	0		53.4	46.6	0	0		0	28.6	71.2	0.2		
Total %	24.7	0	6.5	0	31.2	14.2	12.4	0	0	26.6	0	12.1	30	0.1	42.2	
Cars	2386	0	608	0	2994	1341	1179	0	0	2520	0	1156	2914	7	4077	9591
% Cars	97.5	0	94.4	0	96.9	95.5	96.1	0	0	95.8	0	96.9	98	100	97.7	96.9
Single Unit Trucks	57	0	26	0	83	40	41	0	0	81	0	33	57	0	90	254
% Single Unit Trucks	2.3	0	4	0	2.7	2.8	3.3	0	0	3.1	0	2.8	1.9	0	2.2	2.6
Tractor Trailers	4	0	10	0	14	23	7	0	0	30	0	4	2	0	6	50
% Tractor Trailers	0.2	0	1.6	0	0.5	1.6	0.6	0	0	1.1	0	0.3	0.1	0	0.1	0.5

Mile Posts: 0.000 - 2.000

NJ 26 (South to North)















<div>Secondary Direction</div> <div>Primary Direction</div>	Pavement	24		14		1		30		Livingston Avenue	
	Shoulder										
	Number of Lanes										
	Speed Limit										
<div>267</div> <div>22</div> <div>33</div> <div>689</div> <div>2</div> <div>Separated Interchange</div> <div>Traffic Signal</div> <div>WIM</div> <div>AVC</div> <div>VOL</div> <div>Road Underpass</div> <div>Road Overpass</div>	Street Name	Secondary Direction		Primary Direction							
	Interstate Route										
	US Route										
	NJ Route										
	County Road										
	Interchange Number										
	Grade										
	Separated Interchange										
	Traffic Signal										
	Traffic Monitoring Sites										
	Road Underpass										
	Road Overpass										
	Street Name	Livingston Avenue		Livingston Avenue							
	Jurisdiction	N.J.D.O.T.		N.J.D.O.T.							
	Functional Class	Urban Minor Arterial		Urban Minor Arterial							
	Federal Aid - NHS Sy	STP		STP							
	Control Section										
	Speed Limit	1215		1215							
	Number of Lanes	30		2		45		3		35	
	Med. Type	1		Curbed		None		0		2	
	Med. Width	24		14		36		48		70	
	Pavement										
	Shoulder										
	Traffic Volume										
	Traffic Sta. ID										
	Structure No.										
	Enlarged Views										

[illegible]

Appendix C

Capacity Analysis

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	411	133	378	319	210	715
Future Volume (vph)	411	133	378	319	210	715
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	10	11	10	12	11	10
Grade (%)	0%			2%	0%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			1
Taper Length (ft)	300		60			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			35	35	
Link Distance (ft)	348			264	449	
Travel Time (s)	6.8			5.1	8.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	9%	4%	6%	8%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	433	140	398	336	221	753
Turn Type	Prot	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	28.0	23.0	23.0
Minimum Split (s)	12.0	12.0	11.0	53.0	29.0	29.0
Total Split (s)	37.0	37.0	24.0	53.0	29.0	29.0
Total Split (%)	41.1%	41.1%	26.7%	58.9%	32.2%	32.2%
Yellow Time (s)	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	27.5	27.5	51.5	51.5	27.5	27.5
Actuated g/C Ratio	0.31	0.31	0.57	0.57	0.31	0.31
v/c Ratio	0.87	0.26	0.57	0.32	0.42	0.76
Control Delay	47.6	5.0	19.6	12.2	29.4	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	5.0	19.6	12.2	29.4	8.3
LOS	D	A	B	B	C	A
Approach Delay	37.2			16.2	13.1	
Approach LOS	D			B	B	
Queue Length 50th (ft)	226	0	123	97	102	0
Queue Length 95th (ft)	#333	38	210	165	178	116
Internal Link Dist (ft)	268			184	369	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	579	612	695	1040	532	990
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.23	0.57	0.32	0.42	0.76

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 20.1

Intersection LOS: C

Intersection Capacity Utilization 75.9%

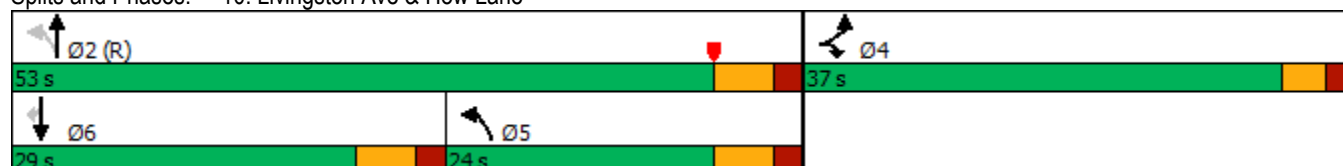
ICU Level of Service D













Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 10: Livingston Ave & How Lane



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	638	191	246	352	371	527
Future Volume (vph)	638	191	246	352	371	527
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	10	11	10	12	11	10
Grade (%)	0%			2%	0%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			1
Taper Length (ft)	300		60			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			35	35	
Link Distance (ft)	348			264	236	
Travel Time (s)	6.8			5.1	4.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	5%	2%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	665	199	256	367	386	549
Turn Type	Prot	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	30.0	25.0	25.0
Minimum Split (s)	12.0	12.0	11.0	46.0	31.0	31.0
Total Split (s)	44.0	44.0	15.0	46.0	31.0	31.0
Total Split (%)	48.9%	48.9%	16.7%	51.1%	34.4%	34.4%
Yellow Time (s)	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effect Green (s)	37.2	37.2	41.8	41.8	26.8	26.8
Actuated g/C Ratio	0.41	0.41	0.46	0.46	0.30	0.30
v/c Ratio	0.94	0.26	0.67	0.42	0.70	0.65
Control Delay	48.2	3.4	33.9	18.5	36.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	3.4	33.9	18.5	36.7	6.7
LOS	D	A	C	B	D	A
Approach Delay	37.9			24.8	19.1	
Approach LOS	D			C	B	
Queue Length 50th (ft)	340	0	93	139	199	0
Queue Length 95th (ft)	#561	38	#159	213	#325	84
Internal Link Dist (ft)	268			184	156	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	741	780	382	878	555	841
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.26	0.67	0.42	0.70	0.65

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.2

Intersection LOS: C

Intersection Capacity Utilization 82.7%

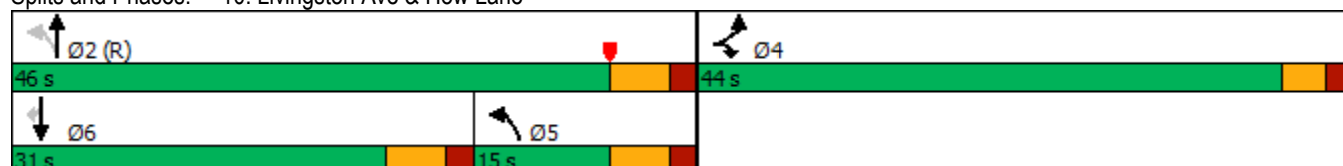
ICU Level of Service E













Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 10: Livingston Ave & How Lane



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	423	136	386	342	231	733
Future Volume (vph)	423	136	386	342	231	733
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	10	11	10	12	11	10
Grade (%)	0%			2%	0%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			1
Taper Length (ft)	300		60			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			35	35	
Link Distance (ft)	348			264	236	
Travel Time (s)	6.8			5.1	4.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	9%	4%	6%	8%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	445	143	406	360	243	772
Turn Type	Prot	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	28.0	23.0	23.0
Minimum Split (s)	12.0	12.0	11.0	53.0	29.0	29.0
Total Split (s)	37.0	37.0	24.0	53.0	29.0	29.0
Total Split (%)	41.1%	41.1%	26.7%	58.9%	32.2%	32.2%
Yellow Time (s)	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effect Green (s)	28.0	28.0	51.0	51.0	27.0	27.0
Actuated g/C Ratio	0.31	0.31	0.57	0.57	0.30	0.30
v/c Ratio	0.88	0.26	0.61	0.35	0.46	0.77
Control Delay	48.6	4.9	21.3	12.6	30.6	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	4.9	21.3	12.6	30.6	8.6
LOS	D	A	C	B	C	A
Approach Delay	38.0			17.2	13.9	
Approach LOS	D			B	B	
Queue Length 50th (ft)	232	0	129	108	115	0
Queue Length 95th (ft)	#368	38	215	178	196	121
Internal Link Dist (ft)	268			184	156	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	579	614	670	1032	524	1000
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.23	0.61	0.35	0.46	0.77

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 20.9

Intersection LOS: C

Intersection Capacity Utilization 77.0%

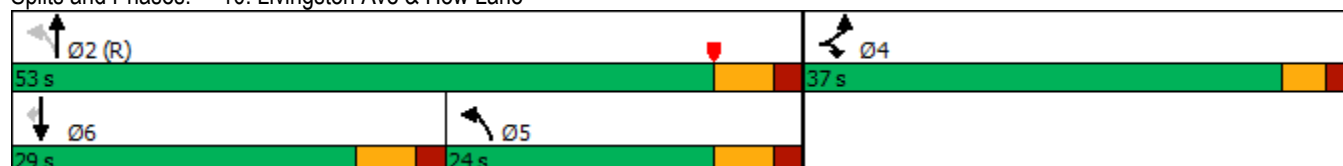
ICU Level of Service D













Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 10: Livingston Ave & How Lane



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	654	195	251	373	391	541
Future Volume (vph)	654	195	251	373	391	541
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	10	11	10	12	11	10
Grade (%)	0%			2%	0%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			1
Taper Length (ft)	300		60			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			35	35	
Link Distance (ft)	348			264	236	
Travel Time (s)	6.8			5.1	4.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	5%	2%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	681	203	261	389	407	564
Turn Type	Prot	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	30.0	25.0	25.0
Minimum Split (s)	12.0	12.0	11.0	46.0	31.0	31.0
Total Split (s)	44.0	44.0	15.0	46.0	31.0	31.0
Total Split (%)	48.9%	48.9%	16.7%	51.1%	34.4%	34.4%
Yellow Time (s)	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	37.7	37.7	41.3	41.3	26.3	26.3
Actuated g/C Ratio	0.42	0.42	0.46	0.46	0.29	0.29
v/c Ratio	0.95	0.27	0.73	0.45	0.75	0.67
Control Delay	50.0	3.4	38.8	19.1	39.5	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	3.4	38.8	19.1	39.5	6.9
LOS	D	A	D	B	D	A
Approach Delay	39.3			27.0	20.5	
Approach LOS	D			C	C	
Queue Length 50th (ft)	354	0	95	150	213	0
Queue Length 95th (ft)	#581	38	#180	228	#354	85
Internal Link Dist (ft)	268			184	156	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	741	782	359	869	545	846
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.26	0.73	0.45	0.75	0.67

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 28.8

Intersection LOS: C

Intersection Capacity Utilization 83.9%

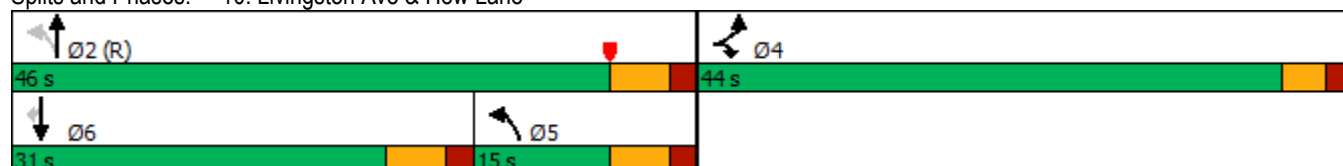
ICU Level of Service E













Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 10: Livingston Ave & How Lane



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	423	136	389	347	234	733
Future Volume (vph)	423	136	389	347	234	733
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	10	11	10	12	11	10
Grade (%)	0%			2%	0%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			1
Taper Length (ft)	300		60			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			35	35	
Link Distance (ft)	348			266	236	
Travel Time (s)	6.8			5.2	4.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	9%	4%	6%	8%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	445	143	409	365	246	772
Turn Type	Prot	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	28.0	23.0	23.0
Minimum Split (s)	12.0	12.0	11.0	53.0	29.0	29.0
Total Split (s)	37.0	37.0	24.0	53.0	29.0	29.0
Total Split (%)	41.1%	41.1%	26.7%	58.9%	32.2%	32.2%
Yellow Time (s)	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effect Green (s)	28.0	28.0	51.0	51.0	27.0	27.0
Actuated g/C Ratio	0.31	0.31	0.57	0.57	0.30	0.30
v/c Ratio	0.88	0.26	0.61	0.35	0.47	0.77
Control Delay	48.6	4.9	21.6	12.7	30.7	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	4.9	21.6	12.7	30.7	8.6
LOS	D	A	C	B	C	A
Approach Delay	38.0			17.4	13.9	
Approach LOS	D			B	B	
Queue Length 50th (ft)	232	0	130	109	116	0
Queue Length 95th (ft)	#368	38	216	181	198	121
Internal Link Dist (ft)	268			186	156	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	579	614	668	1032	524	1000
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.23	0.61	0.35	0.47	0.77

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 21.0

Intersection LOS: C

Intersection Capacity Utilization 77.2%

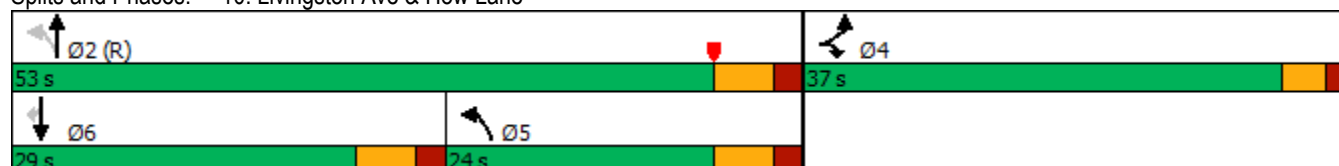
ICU Level of Service D













Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 10: Livingston Ave & How Lane



						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	654	194	261	390	408	541
Future Volume (vph)	654	194	261	390	408	541
Ideal Flow (vphpl)	1950	1950	1950	1950	1950	1950
Lane Width (ft)	10	11	10	12	11	10
Grade (%)	0%			2%	0%	
Storage Length (ft)	150	0	150			0
Storage Lanes	1	1	1			1
Taper Length (ft)	300		60			
Right Turn on Red		Yes				Yes
Link Speed (mph)	35			35	35	
Link Distance (ft)	348			264	236	
Travel Time (s)	6.8			5.1	4.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	4%	5%	2%	1%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	681	202	272	406	425	564
Turn Type	Prot	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases			2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	30.0	25.0	25.0
Minimum Split (s)	12.0	12.0	11.0	46.0	31.0	31.0
Total Split (s)	44.0	44.0	15.0	46.0	31.0	31.0
Total Split (%)	48.9%	48.9%	16.7%	51.1%	34.4%	34.4%
Yellow Time (s)	3.0	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	6.0	6.0	6.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effect Green (s)	37.7	37.7	41.3	41.3	26.3	26.3
Actuated g/C Ratio	0.42	0.42	0.46	0.46	0.29	0.29
v/c Ratio	0.95	0.27	0.79	0.47	0.78	0.67
Control Delay	50.0	3.3	44.9	19.4	41.5	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	3.3	44.9	19.4	41.5	6.9
LOS	D	A	D	B	D	A
Approach Delay	39.3			29.7	21.8	
Approach LOS	D			C	C	
Queue Length 50th (ft)	354	0	100	158	226	0
Queue Length 95th (ft)	#581	38	#207	240	#378	85
Internal Link Dist (ft)	268			184	156	
Turn Bay Length (ft)	150		150			
Base Capacity (vph)	741	782	345	869	545	846
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.26	0.79	0.47	0.78	0.67

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 29.9

Intersection LOS: C

Intersection Capacity Utilization 84.5%

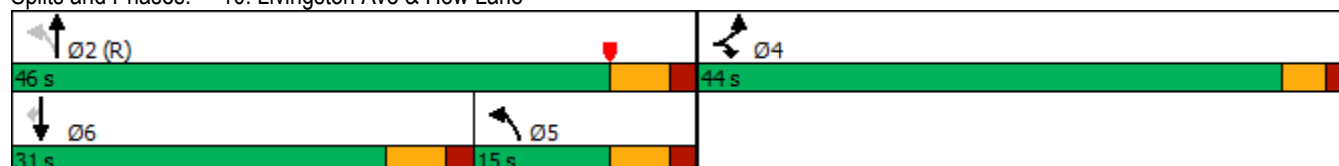
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 10: Livingston Ave & How Lane



Intersection

Int Delay, s/veh 0.2

Movement EBL EBR NBL NBT SBT SBRLane Configurations 

Traffic Vol, veh/h 4 5 5 693 331 12

Future Vol, veh/h 4 5 5 693 331 12

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - None - None - None

Storage Length 0 - - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 2 - - 0 0 -

Peak Hour Factor 90 90 90 90 90 90

Heavy Vehicles, % 25 0 0 3 4 0

Mvmt Flow 4 6 6 770 368 13

Major/Minor Minor2 Major1 Major2

Conflicting Flow All 1157 375 381 0 - 0

Stage 1 375 - - - - -

Stage 2 782 - - - - -

Critical Hdwy 7.05 6.4 4.1 - - -

Critical Hdwy Stg 1 6.05 - - - - -

Critical Hdwy Stg 2 6.05 - - - - -

Follow-up Hdwy 3.725 3.3 2.2 - - -

Pot Cap-1 Maneuver 172 662 1189 - - -

Stage 1 621 - - - - -

Stage 2 379 - - - - -

Platoon blocked, % - - -

Mov Cap-1 Maneuver 170 662 1189 - - -

Mov Cap-2 Maneuver 285 - - - - -

Stage 1 615 - - - - -

Stage 2 379 - - - - -

Approach EB NB SB

HCM Control Delay, s 13.8 0.1 0

HCM LOS B

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR




Capacity (veh/h) 1189 - 417 - -




HCM Lane V/C Ratio 0.005 - 0.024 - -




HCM Control Delay (s) 8 0 13.8 - -





HCM Lane LOS A A B - -





HCM 95th %tile Q(veh) 0 - 0.1 - -




Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	6	6	585	559	3
Future Vol, veh/h	13	6	6	585	559	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	0	2	2	33
Mvmt Flow	14	7	7	636	608	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1260	610	611	0	-	0
Stage 1	610	-	-	-	-	-
Stage 2	650	-	-	-	-	-
Critical Hdwy	6.8	6.57	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.453	2.2	-	-	-
Pot Cap-1 Maneuver	165	452	978	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	487	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	163	452	978	-	-	-
Mov Cap-2 Maneuver	300	-	-	-	-	-
Stage 1	504	-	-	-	-	-
Stage 2	487	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.4	0.1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	978	-	336	-	-	
HCM Lane V/C Ratio	0.007	-	0.061	-	-	
HCM Control Delay (s)	8.7	0	16.4	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	5	5	724	355	12
Future Vol, veh/h	4	5	5	724	355	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	25	0	0	3	4	0
Mvmt Flow	4	6	6	804	394	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1217	401	407	0	-	0
Stage 1	401	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Critical Hdwy	7.05	6.4	4.1	-	-	-
Critical Hdwy Stg 1	6.05	-	-	-	-	-
Critical Hdwy Stg 2	6.05	-	-	-	-	-
Follow-up Hdwy	3.725	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	157	639	1163	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	156	639	1163	-	-	-
Mov Cap-2 Maneuver	271	-	-	-	-	-
Stage 1	597	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	14.3	0.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1163	-	398	-	-	
HCM Lane V/C Ratio	0.005	-	0.025	-	-	
HCM Control Delay (s)	8.1	0	14.3	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	6	6	611	583	3
Future Vol, veh/h	13	6	6	611	583	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	0	2	2	33
Mvmt Flow	14	7	7	664	634	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1314	636	637	0	-	0
Stage 1	636	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Critical Hdwy	6.8	6.57	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.453	2.2	-	-	-
Pot Cap-1 Maneuver	152	436	956	-	-	-
Stage 1	495	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	150	436	956	-	-	-
Mov Cap-2 Maneuver	287	-	-	-	-	-
Stage 1	489	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.9	0.1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	956	-	322	-	-	
HCM Lane V/C Ratio	0.007	-	0.064	-	-	
HCM Control Delay (s)	8.8	0	16.9	-	-	
HCM Lane LOS	A	A	C	-	-	
HCM 95th %tile Q(veh)	0	-	0.2	-	-	

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	6	9	724	360	12
Future Vol, veh/h	12	6	9	724	360	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	25	0	0	3	4	0
Mvmt Flow	13	7	10	804	400	13
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1231	407	413	0	-	0
Stage 1	407	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Critical Hdwy	7.05	6.4	4.1	-	-	-
Critical Hdwy Stg 1	6.05	-	-	-	-	-
Critical Hdwy Stg 2	6.05	-	-	-	-	-
Follow-up Hdwy	3.725	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	153	634	1157	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	151	634	1157	-	-	-
Mov Cap-2 Maneuver	267	-	-	-	-	-
Stage 1	588	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	16.4	0.1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1157	-	267	634	-	-
HCM Lane V/C Ratio	0.009	-	0.05	0.011	-	-
HCM Control Delay (s)	8.1	0	19.2	10.7	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	0	-	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	49	8	34	602	602	3
Future Vol, veh/h	49	8	34	602	602	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	50	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	0	2	2	33
Mvmt Flow	53	9	37	654	654	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1384	656	657	0	-	0
Stage 1	656	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Critical Hdwy	6.8	6.57	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.453	2.2	-	-	-
Pot Cap-1 Maneuver	137	424	940	-	-	-
Stage 1	483	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	129	424	940	-	-	-
Mov Cap-2 Maneuver	264	-	-	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	20.9	0.5		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	940	-	264	424	-	-
HCM Lane V/C Ratio	0.039	-	0.202	0.021	-	-
HCM Control Delay (s)	9	0	22.1	13.7	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.1	-	-

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	9	17	4	9	1
Future Vol, veh/h	1	9	17	4	9	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	65	65	65	65	65	65
Heavy Vehicles, %	2	11	0	2	2	2
Mvmt Flow	2	14	26	6	14	2
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	32	0	-	0	47	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	18	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1580	-	-	-	963	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	1005	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1580	-	-	-	962	1046
Mov Cap-2 Maneuver	-	-	-	-	962	-
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	1005	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.7	0		8.8		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1580	-	-	-	970	
HCM Lane V/C Ratio	0.001	-	-	-	0.016	
HCM Control Delay (s)	7.3	0	-	-	8.8	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection

Int Delay, s/veh 3.9

Movement EBL EBT WBT WBR SBL SBRLane Configurations 

Traffic Vol, veh/h 2 19 9 28 38 2

Future Vol, veh/h 2 19 9 28 38 2

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 58 58 58 58 58 58

Heavy Vehicles, % 2 5 11 2 2 2

Mvmt Flow 3 33 16 48 66 3

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 64 0 - 0 79 40

Stage 1 - - - - 40 -

Stage 2 - - - - 39 -

Critical Hdwy 4.12 - - - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy 2.218 - - - 3.518 3.318

Pot Cap-1 Maneuver 1538 - - - 924 1031

Stage 1 - - - - 982 -

Stage 2 - - - - 983 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1538 - - - 922 1031

Mov Cap-2 Maneuver - - - - 922 -

Stage 1 - - - - 980 -

Stage 2 - - - - 983 -

Approach EB WB SB

HCM Control Delay, s 0.7 0 9.2

HCM LOS A

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1538 - - - 927

HCM Lane V/C Ratio 0.002 - - - 0.074

HCM Control Delay (s) 7.3 0 - - 9.2

HCM Lane LOS A A - - A

HCM 95th %tile Q(veh) 0 - - - 0.2

Intersection

Int Delay, s/veh 0

Movement EBL EBR NBL NBT SBT SBRLane Configurations      

Traffic Vol, veh/h 0 5 0 736 367 3

Future Vol, veh/h 0 5 0 736 367 3

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Stop Stop Free Free Free Free

RT Channelized - Stop - None - None

Storage Length - 0 - - - -

Veh in Median Storage, # 0 - - 0 0 -

Grade, % 0 - - 0 0 -

Peak Hour Factor 87 87 25 87 87 87

Heavy Vehicles, % 0 2 0 3 7 2

Mvmt Flow 0 6 0 846 422 3

Major/Minor Minor2 Major1 Major2

Conflicting Flow All - 424 - 0 - 0

Stage 1 - - - - - -

Stage 2 - - - - - -

Critical Hdwy - 6.22 - - - -

Critical Hdwy Stg 1 - - - - - -

Critical Hdwy Stg 2 - - - - - -

Follow-up Hdwy - 3.318 - - - -

Pot Cap-1 Maneuver 0 630 0 - - -

Stage 1 0 - 0 - - -

Stage 2 0 - 0 - - -

Platoon blocked, % - - - - - -

Mov Cap-1 Maneuver - 630 - - - -

Mov Cap-2 Maneuver - - - - - -

Stage 1 - - - - - -

Stage 2 - - - - - -

Approach EB NB SB

HCM Control Delay, s 10.8 0 0

HCM LOS B

Minor Lane/Major Mvmt NBT EBLn1 SBT SBR

Capacity (veh/h) - 630 - -

HCM Lane V/C Ratio - 0.009 - -




HCM Control Delay (s) - 10.8 - -

HCM Lane LOS - B - -

HCM 95th %tile Q(veh) - 0 - -

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	30	0	651	575	27
Future Vol, veh/h	0	30	0	651	575	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	83	83	83	83
Heavy Vehicles, %	0	2	0	2	2	2
Mvmt Flow	0	36	0	784	693	33

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 710	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 6.22	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.318	- -	- -
Pot Cap-1 Maneuver	0 434	0 -	- -
Stage 1	0 -	0 -	- -
Stage 2	0 -	0 -	- -
Platoon blocked, %		- -	- -
Mov Cap-1 Maneuver	- 434	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s	14	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 434	- -	- -
HCM Lane V/C Ratio	- 0.083	- -	- -
HCM Control Delay (s)	- 14	- -	- -
HCM Lane LOS	- B	- -	- -
HCM 95th %tile Q(veh)	- 0.3	- -	- -